

ejer11 lec2.1großman2ED.

BY DIEGO ALVAREZ

Demuestre que si A y B son matrices de $n \times n$, entonces $\det A.B = \det A \cdot \det B$
 respuesta:

$$A = \begin{pmatrix} a_{11} & 0 & 0 \dots & 0 \\ 0 & a_{22} \dots & 0 \dots & 0 \\ \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & a_{n \times n} \end{pmatrix} \text{ and } B = \begin{pmatrix} b_{11} & \dots & \dots & \dots & 0 \dots \\ \vdots & b_{22} & \vdots & \vdots & \vdots \\ \vdots & \vdots & \dots & 0 & 0 \\ \vdots & 0 & \dots & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ 0 \dots & 0 & 0 & 0 & b_{n \times n} \end{pmatrix}$$

$$A.B = \begin{pmatrix} a_{11}.b_{11} & \dots & \dots & 0 \\ \vdots & a_{22}.b_{22} & \dots & 0 \\ \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & 0 & a_{n \times n}.b_{n \times n} \end{pmatrix}$$

$$\det A = (a_{11}a_{22} \dots a_{n \times n}); \det B = (b_{11}b_{22} \dots b_{n \times n})$$

$$\det A.B = (a_{11}.b_{11})(a_{22}b_{22}) \dots (a_{n \times n}.b_{n \times n})$$

$$= (a_{11}a_{22} \dots a_{n \times n})(b_{11}b_{22} \dots b_{n \times n}) = \det A \cdot \det B$$

con esto queda demostrado que si dos matrices que son diagonales $n.n$ la multiplicacion entre ellas y de sus determinantes es la misma entre si.